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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/067,762	02/06/2002	Jeff Moler	VTE-120-A	6216

7590 10/07/2003
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EXAMINER

DOUGHERTY, THOMAS M

ART UNIT PAPER NUMBER

2834

DATE MAILED: 10/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/067,762

Applicant(s)

MOLER, JEFF

Examiner

Thomas M. Dougherty

Art Unit

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 August 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) 21 and 22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 and 23-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 21 and 22 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States

Claims 1-20, 25 and 26 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Uchikawa (US 4,570,095). Uchikawa shows (fig. 3) an apparatus for moving at least one of a pair of opposing surfaces (inner surfaces of 5, 6) in response to an electrical activation comprising: a support (part attached to 11) including a rigid non-flexing portion (extensions from the support), at least one pivotable arm portion (5 or 6) integrally extending through a first hinge portion from the rigid portion (support), at least one opposing surface (inside surfaces of 5 or 6) connected to the at least one pivotable arm portion (5 or 6) for movement relative to the rigid portion (support), and a force transfer member (connected to first hinges and actuator) integrally extending through a second hinge portion from the rigid portion (support) and operable positioned for driving the at least one pivotable arm portion (5, 6) in rotational movement, the first and second hinge portions separated from one another by only a single narrow gap; and, an actuator (1) operably engaged between the rigid portion (support) and the force transfer member (connected to first hinges and actuator) for driving the force transfer member relative to pivot the at least one pivotable arm portion (5, 6) in response to an electrical activation of the actuator (1).

The support is a single piece.

The actuator (19) is a piezoelectric device (see title).

The rigid portion (support) is C-shaped including a extending between a pair of rigid arm portions.

One of the pivotable arm portions (5 or 6) is pivotably connected to one of the rigid arm portions and the other of the pivotable arm portions (6 or 5) is pivotable connected to the other of the rigid arm portions.

The actuator (1) includes opposite ends and produces a spatial displacement between the opposite ends in response to an electrical activation.

The rigid portion supports a seat surface.

One of the opposite ends of the actuator (1) is a planar surface and the seat surface supported by the rigid portion is a planar surface with the planar end surface of the actuator (1) disposed adjacent to the planar seat surface supported by the rigid portion.

The planar end surface of the actuator (1) applies force to the planar seat surface supported by the rigid portion in response to a spatial displacement of the actuator (1).

The planar end surface of the actuator (1) operable contacts the planar seat surface supported by the rigid portion at a minimum operating spatial displacement of the actuator (1).

The planar end surface of the actuator (1) operably connects the planar seat surface supported by the rigid portion at a maximum operating spatial displacement of the actuator (1).

The planar end surface of the actuator (1) operably contacts the planar seat surface supported by the rigid portion at all spatial displacements between a minimum operating spatial displacement of the actuator (1) and a maximum operating spatial displacement of the actuator (1).

The force transfer member (between actuator and hinges) includes a seat surface.

One of the opposite ends of the actuator (1) is a planar surface and the seat surface of the force transfer member is a planar surface with the planar end surface of the actuator (1) disposed adjacent to the planar seat surface of the force transfer member (between actuator and hinges).

The planar end surface of the actuator (1) applies force to the planar seat surface of the force transfer member in response to a spatial displacement of the actuator (1).

The planar end surface of the actuator (1) contacts the planar seat surface of the force transfer member at a maximum operating spatial displacement of the actuator (1).

The planar end surface of the actuator (1) operably contacts the planar seat surface of the force transfer member at a maximum operating spatial displacement of the actuator (1).

The planar end surface of the actuator (1) operably contacts the planar seat surface of the force transfer member at all spatial displacements between a minimum operating spatial displacement of the actuator (1) and a maximum operating spatial displacement of the actuator (1).

The rigid portion, the pivotable arm portion (5 or 6) and the force transfer member (between the actuator and hinges) meet at one location to form a force transfer mechanism. Note that the Applicant's rigid support (12) is connected at a hinge portion to the first pivotable arm (18) and the pivotable arm (18) is likewise connected to the force transfer member by a hinge, thus the structure shown by the Applicant is identical to that shown by Asano.

The apparatus further comprising an integral spring (hinge) defined where at least one pivotable portion (5 or 6) attaches to the rigid portion.

The apparatus further comprising a rigid non-flexing seat formed on the force transfer member, the actuator (1) operably engaged between the rigid portion of the support and the rigid seat of the force transfer member for driving the rigid non-flexing seat of the force transfer member relative to the rigid portion of the support to pivot the at least one pivotable arm (5 or 6) in response to electrical activation of the actuator (1).

The apparatus further comprising: a pair of hinge portions (as noted), one hinge portion integrally extending between the force transfer member and the arm (5 or 6) and another hinge portion integrally extending between the rigid portion of the support and the at least one pivotable arm (5 or 6), the pair of hinge portions extending parallel and in close proximity with respect to one another.

Claims 24 is rejected under 35 U.S.C. 102(b) as being anticipated by Uchikawa (US 4,570,095). In addition to the invention of Uchikawa as noted above he further shows (fig. 3) at least one hinge portion extending at an angle (90°) from the force transfer member to the at least one pivotable arm (5 or 6) for pivoting the arm (5 or 6).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 23 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uchikawa (4,570,095) in view of Hattori et al. (US 4,937,489). Given the invention of Uchikawa as noted above, he doesn't show an adjustable screw connected to the rigid portion and engagable with the actuator for preloading the actuator with compressive force against the force transfer member nor does either show an adjustable means for preloading the actuator positioned between the rigid portion and the force transfer member, the adjustable preloading means operable for imparting a predefined compressive force on the actuator.

Hattori et al. show (fig. 1) an apparatus for moving at least one of a pair of opposing surfaces (inner surfaces of 12, 15) in response to an electrical activation comprising: a support (where the screw is) including a rigid non-flexing portion (see claim 1), at least one pivotable (11a) arm portion (12, 15) integrally extending from the rigid portion (where the screw is), at least one opposing surface (inside surfaces of 12, 15) connected to the at least one pivotable arm portion (12, 15) for movement relative to the rigid portion (where screw is), and a force transfer member (opposite side of actuator at 6) integrally extending from the rigid portion (11) and operably positioned for

driving the at least one pivotable arm portion (12, 15) in rotational movement; and an actuator (1) operably engaged between the rigid portion (where screw is) and the force transfer member (opposite side of actuator at 6) for driving the force transfer member relative to pivot (11a) the at least one pivotable arm portion (12, 15) in response to an electrical activation of the actuator (1).

Hattori et al. further show an adjustable screw (23) connected to the rigid portion (where the screw is) and engagable with the actuator (20) for preloading the actuator with compressive force against the force transfer member (on top of actuator at end opposing the screw) nor does he show an adjustable means (23) for preloading the actuator positioned between the rigid portion (where the screw is) and the force transfer member (at end of actuator opposite to the screw), the adjustable preloading (23) means operable for imparting a predefined compressive force on the actuator (20).

Hattori et al. do not show a rigid portion including arms, only the base component where the screw is.

It would have been obvious to one having ordinary skill in the art to make the device of Uchikawa adjustable by use of an adjustable screw at the time of either invention, such as is taught by Hattori et al. because this would allow for an uncomplicated operation since this arrangement allows for a satisfactory displacement motion. This is noted by Hattori et al. at col. 1, lines 48-60.

Claims 23 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uchikawa (US 4,570,095) in view of Jaenker (US 6,294,859). Given the invention of Uchikawa as noted above, he does not show an adjustable screw connected to the

rigid portion and engagable with the actuator for preloading the actuator with compressive force against the force transfer member nor does either show an adjustable means for preloading the actuator positioned between the rigid portion and the force transfer member, the adjustable preloading means operable for imparting a predefined compressive force on the actuator.

Jaenker shows (fig. 3) an apparatus for moving at least one of a pair of opposing surfaces (e.g. inner surfaces of 116) in response to an electrical activation comprising: a support (where the screws are) including a rigid non-flexing portion, at least one pivotable (110) arm portion (116) integrally extending from the rigid portion (where the screws are), at least one opposing surface (inside surfaces of 116) connected to the at least one pivotable arm portion (116) for movement relative to the rigid portion (where screws are); and an actuator (e.g. 106) operably engaged to the rigid portion (where screws are) for driving the the at least one pivotable arm portion (116) in response to an electrical activation of the actuator (106).

Jaenker further shows an adjustable screw (28) connected to the rigid portion (where the screw is) and engagable with the actuator (106) for preloading the actuator with compressive force. See discussion at column 8, ll. 51-60.

Jaenker shows an adjustable means (28) for preloading the actuator positioned at the rigid portion (where the screw is), the adjustable preloading (28) means operable for imparting a predefined compressive force on the actuator (106). See discussion at column 8, ll. 51-60.

He does not show a specific force transfer member extending from the rigid portion so that it is operably positioned for driving the at least one pivotable arm portion in rotational movement. Jaenker does not show a rigid portion including arms, only the base component where the screw is.

It would have been obvious to one having ordinary skill in the art to make the device of Uchikawa adjustable by use of an adjustable screw at the time of either invention, such as is taught by Jaenker because this would allow for compensation due to expansion caused by temperature, additionally, it would make the device more versatile.

Direct inquiry concerning this action to Examiner Dougherty at (703) 308-1628.

tmd

September 30, 2003

A handwritten signature in black ink, appearing to read "Examiner M. Dougherty". The signature is stylized with a large, looped "D" and a cursive "y".